

SEQUENCE LISTING

<110> BIOAXONE THERAPEUTIQUE INC.

MCKERRACHER, LISA

LASKO, DANA

<120> COMPOSITIONS AND METHODS FOR TREATING TUMOR SPREADING

<130> 16627-2PCT

<150> US 10/902,879

<151> 2004-08-02

<150> US 60/506,162

<151> 2003-09-29

<160> 59

<170> PatentIn version 3.1

<210> 1

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide used to remove the stop codon from ADP-ribosyl transferase C3 (Clostridium botulinum) cDNA.

<400> 1

gaattcttta ggattgatag ctgtgcc

27

<210> 2

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide used to remove the stop codon from ADP-ribosyl transferase C3 (Clostridium botulinum) cDNA.

<400> 2

ggtggcgacc atcctccaaa a

, 21

<210> 3

<211> 888

<212> DNA

<213> Artificial Sequence

<220>

<223> Sequence of C3APL: includes ADP-ribosyl transferase C3 (Clostridium botulinum) and Antennapedia sequence.

<220>

<221> CDS

<222> (1) .. (888)

<223>

<400> 3

gga tcc tct aga gtc gac ctg cag gca tgc aat gct tat tcc att aat 48

Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn

1 5 10 15

caa aag gct tat tca aat act tac cag gag ttt act aat att gat caa 96

Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln

20 25 30

gca aaa gct tgg ggt aat gct cag tat aaa aag tat gga cta agc aaa 144

Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys

35 40 45

tca gaa aaa gaa gct ata gta tca tat act aaa agc gct agt gaa ata 192

Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile

50 55 60

aat gga aag cta aga caa aat aag gga gtt atc aat gga ttt cct tca 240

Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser

65 70 75 80

aat tta ata aaa caa gtt gaa ctt tta gat aaa tct ttt aat aaa atg 288

Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met

85 90 95

aag acc cct gaa aat att atg tta ttt aga ggc gac gac cct gct tat 336

Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr
 100 105 110
 tta gga aca gaa ttt caa aac act ctt ctt aat tca aat ggt aca att 384
 Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile
 115 120 125
 aat aaa acg gct ttt gaa aag gct aaa gct aag ttt tta aat aaa gat 432
 Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp
 130 135 140
 aga ctt gaa tat gga tat att agt act tca tta atg aat gtc tct caa 480
 Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln
 145 150 155 160
 ttt gca gga aga cca att att aca caa ttt aaa gta gca aaa ggc tca 528
 Phe Ala Gly Arg Pro Ile Ile Thr Gln Phe Lys Val Ala Lys Gly Ser
 165 170 175
 aag gca gga tat att gac cct att agt gct ttt cag gga caa ctt gaa 576
 Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu
 180 185 190
 atg ttg ctt cct aga cat agt act tat cat ata gac gat atg aga ttg 624
 Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu
 195 200 205
 tct tct gat ggt aaa caa ata ata att aca gca aca atg atg ggc aca 672
 Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr

210 215 220

gct atc aat cct aaa gaa ttc gtg atg gaa tcc cgc aaa cgc gca agg 720
Ala Ile Asn Pro Lys Glu Phe Val Met Glu Ser Arg Lys Arg Ala Arg

225 230 235 240

cag aca tac acc cgg tac cag act cta gag cta gag aag gag ttt cac 768
Gln Thr Tyr Thr Arg Tyr Gln Thr Leu Glu Leu Glu Lys Glu Phe His

245 250 255

ttc aat cgc tac ttg acc cgt cgg cga agg atc gag atc gcc cac gcc 816
Phe Asn Arg Tyr Leu Thr Arg Arg Arg Arg Ile Glu Ile Ala His Ala

260 265 270

ctg tgc ctc acg gag cgc cag ata aag att tgg ttc cag aat cgg cgc 864
Leu Cys Leu Thr Glu Arg Gln Ile Lys Ile Trp Phe Gln Asn Arg Arg

275 280 285

atg aag tgg aag aag gag aac tga 888
Met Lys Trp Lys Lys Glu Asn

290 295

<210> 4

<211> 295

<212> PRT

<213> Artificial Sequence

<220>

<223> Sequence of C3APLT: includes ADP-ribosyl transferase C3 (Clostridium botulinum) and Antennapedia sequence.

<400> 4

Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn

1 5 10 15

Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln

20 25 30

Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys

35 40 45

Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile

50 55 60

Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser

65 70 75 80

Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met

85 90 95

Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr

100

105

110

Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile

115

120

125

Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp

130

135

140

Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln

145

150

155

160

Phe Ala Gly Arg Pro Ile Ile Thr Gln Phe Lys Val Ala Lys Gly Ser

165

170

175

Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu

180

185

190

Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu

195

200

205

Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr

210 215 220

Ala Ile Asn Pro Lys Glu Phe Val Met Glu Ser Arg Lys Arg Ala Arg

225 230 235 240

Gln Thr Tyr Thr Arg Tyr Gln Thr Leu Glu Leu Glu Lys Glu Phe His

245 250 255

Phe Asn Arg Tyr Leu Thr Arg Arg Arg Arg Ile Glu Ile Ala His Ala

260 265 270

Leu Cys Leu Thr Glu Arg Gln Ile Lys Ile Trp Phe Gln Asn Arg Arg

275 280 285

Met Lys Trp Lys Lys Glu Asn

290 295

<210> 5

<211> 774

<212> DNA

<213> Artificial Sequence

<220>

<223> Sequence of C3APS: Includes ADP-ribosyl transferase C3 (Clostridium botulinum) and Antennapedia sequence.

<220>

<221> CDS

<222> (1) .. (774)

<223>

<400> 5

gga tcc tct aga gtc gac ctg cag gca tgc aat gct tat tcc att aat 48
Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn
1 5 10 15

caa aag gct tat tca aat act tac cag gag ttt act aat att gat caa 96
Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln
20 25 30

gca aaa gct tgg ggt aat gct cag tat aaa aag tat gga cta agc aaa 144
Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys
35 40 45

tca gaa aaa gaa gct ata gta tca tat act aaa agc gct agt gaa ata 192
Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile
50 55 60

aat gga aag cta aga caa aat aag gga gtt atc aat gga ttt cct tca 240
Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser
65 70 75 80

aat tta ata aaa caa gtt gaa ctt tta gat aaa tct ttt aat aaa atg 288

Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met

85

90

95

aag acc cct gaa aat att atg tta ttt aga ggc gac gac cct gct tat 336

Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr

100

105

110

tta gga aca gaa ttt caa aac act ctt ctt aat tca aat ggt aca att 384

Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile

115

120

125

aat aaa acg gct ttt gaa aag gct aaa gct aag ttt tta aat aaa gat 432

Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp

130

135

140

aga ctt gaa tat gga tat att agt act tca tta atg aat gtc tct caa 480

Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln

145

150

155

160

ttt gca gga aga cca att att aca caa ttt aaa gta gca aaa ggc tca 528

Phe Ala Gly Arg Pro Ile Ile Thr Gln Phe Lys Val Ala Lys Gly Ser

165

170

175

aag gca gga tat att gac cct att agt gct ttt cag gga caa ctt gaa 576

Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu

180

185

190

atg ttg ctt cct aga cat agt act tat cat ata gac gat atg aga ttg 624

Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu

195

200

205

tct tct gat ggt aaa caa ata ata att aca gca aca atg atg ggc aca 672

Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr

210

215

220

gct atc aat cct aaa gaa ttc cgc cag atc aag att tgg ttc cag aat 720

Ala Ile Asn Pro Lys Glu Phe Arg Gln Ile Lys Ile Trp Phe Gln Asn

225

230

235

240

cgt cgc atg aag tgg aag aag gtc gac tcg agc ggc cgc atc gtg act 768

Arg Arg Met Lys Trp Lys Lys Val Asp Ser Ser Gly Arg Ile Val Thr

245

250

255

gac tga

774

Asp

<210> 6

<211> 257

<212> PRT

<213> Artificial Sequence

<220>

<223> Sequence of C3APS: Includes ADP-ribosyl transferase C3 (Clostridium botulinum) and Antennapedia sequence.

<400> 6

Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn
1 5 10 15

Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln
20 25 30

Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys
35 40 45

Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile
50 55 60

Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser
65 70 75 80

Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met
85 90 95

Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr
100 105 110

Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile

115

120

125

Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp

130

135

140

Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln

145

150

155

160

Phe Ala Gly Arg Pro Ile Ile Thr Gln Phe Lys Val Ala Lys Gly Ser

165

170

175

Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu

180

185

190

Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu

195

200

205

Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr

210

215

220

Ala Ile Asn Pro Lys Glu Phe Arg Gln Ile Lys Ile Trp Phe Gln Asn

225

230

235

240

Arg Arg Met Lys Trp Lys Lys Val Asp Ser Ser Gly Arg Ile Val Thr

245

250

255

Asp

<210> 7

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide used in the amplification of Antennapedia sequence

<400> 7

gaatcccgca aacgcgcaag gcag

24

<210> 8

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide used in the amplification of Antennapedia sequence

<400> 8

tcagttctcc ttcttccact tcatgcg

27

<210> 9

<211> 54

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide used in the cloning of sequences from Antennapedia

<400> 9

aattccgccca gatcaagatt tggttccaga atcgtcgcat gaagtggaag aagg

54

<210> 10

<211> 54

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide used in the cloning of sequences from Antennapedia
a

<400> 10

ggcgggtctag ttctaaacca agctcttagc agcgtagttc accttcttcc agct

54

<210> 11

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide used in the amplification of a sequence corresponding to amino acid 27-72 of HIV-1 Tat

<400> 11

gaatccaagc atccaggaag tcagcc

26

<210> 12

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide used in the amplification of a sequence corresponding to amino acid 27-72 of HIV-1 Tat

<400> 12

accagccacc accttctgat a

21

<210> 13

<211> 876

<212> DNA

<213> Artificial Sequence

<220>

<223> Sequence of C3-TL: Includes ADP-ribosyl transferase C3 (Clostridium botulinum) and HIV-1 Tat sequence.

<220>

<221> CDS

<222> (1) .. (876)

<223>

<400> 13

gga tcc tct aga gtc gac ctg cag gca tgc aat gct tat tcc att aat 48

Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn

1 5 10 15

caa aag gct tat tca aat act tac cag gag ttt act aat att gat caa 96

Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln

20 25 30

gca aaa gct tgg ggt aat gct cag tat aaa aag tat gga cta agc aaa 144

Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys
35 40 45

tca gaa aaa gaa gct ata gta tca tat act aaa agc gct agt gaa ata 192
Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile
50 55 60

aat gga aag cta aga caa aat aag gga gtt atc aat gga ttt cct tca 240
Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser
65 70 75 80

aat tta ata aaa caa gtt gaa ctt tta gat aaa tct ttt aat aaa atg 288
Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met
85 90 95

aag acc cct gaa aat att atg tta ttt aga ggc gac gac cct gct tat 336
Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr
100 105 110

tta gga aca gaa ttt caa aac act ctt ctt aat tca aat ggt aca att 384
Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile
115 120 125

aat aaa acg gct ttt gaa aag gct aaa gct aag ttt tta aat aaa gat 432
Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp
130 135 140

aga ctt gaa tat gga tat att agt act tca tta atg aat gtc tct caa 480
Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln

145 150 155 160

ttt gca gga aga cca att att aca caa ttt aaa gta gca aaa ggc tca 528
Phe Ala Gly Arg Pro Ile Ile Thr Gln Phe Lys Val Ala Lys Gly Ser
165 170 175

aag gca gga tat att gac cct att agt gct ttt cag gga caa ctt gaa 576
Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu
180 185 190

atg ttg ctt cct aga cat agt act tat cat ata gac gat atg aga ttg 624
Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu
195 200 205

tct tct gat ggt aaa caa ata ata att aca gca aca atg atg ggc aca 672
Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr
210 215 220

gct atc aat cct aaa gaa ttc aag cat cca gga agt cag cct aaa act 720
Ala Ile Asn Pro Lys Glu Phe Lys His Pro Gly Ser Gln Pro Lys Thr
225 230 235 240

gct tgt acc aat tgc tat tgt aaa aag tgt tgc ttt cat tgc caa gtt 768
Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe His Cys Gln Val
245 250 255

tgt ttc ata aca aaa gcc tta ggc atc tcc tat ggc agg aag cgg aga 816
Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly Arg Lys Arg Arg
260 265 270

cag cga cga aga gct cat cag aac agt cag act cat caa gct tct cta 864

Gln Arg Arg Arg Ala His Gln Asn Ser Gln Thr His Gln Ala Ser Leu

275

280

285

tca aag cag taa

876

Ser Lys Gln

290

<210> 14

<211> 291

<212> PRT

<213> Artificial Sequence

<220>

<223> Sequence of C3-TL: Includes ADP-ribosyl transferase C3 (Clostridium botulinum) and HIV-1 Tat sequence.

<400> 14

Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn

1

5

10

15

Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln

20

25

30

Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys

35

40

45

Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile

50

55

60

Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser

65

70

75

80

Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met

85

90

95

Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr

100

105

110

Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile

115

120

125

Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp

130

135

140

Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln

145 150 155 160

Phe Ala Gly Arg Pro Ile Ile Thr Gln Phe Lys Val Ala Lys Gly Ser

 165 170 175

Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu

 180 185 190

Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu

 195 200 205

Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr

 210 215 220

Ala Ile Asn Pro Lys Glu Phe Lys His Pro Gly Ser Gln Pro Lys Thr

225 230 235 240

Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe His Cys Gln Val

 245 250 255

Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly Arg Lys Arg Arg

 260 265 270

Gln Arg Arg Arg Ala His Gln Asn Ser Gln Thr His Gln Ala Ser Leu

275

280

285

Ser Lys Gln

290

<210> 15

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide used in the cloning of sequences from HIV-1 Tat

<400> 15

aattctatgg tcgtaaaaaa cgtcgtcaac gtcgtcgtg

39

<210> 16

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide used in the cloning of sequences from HIV-1 Tat

<400> 16

gataccagca ttttttgcag cagttgcagc agcacagct

39

<210> 17

<211> 756

<212> DNA

<213> Artificial Sequence

<220>

<223> Sequence of C3-TS: Includes ADP-ribosyl transferase C3 (Clostridium botulinum) and HIV-1 Tat sequence.

<220>

<221> CDS

<222> (1) .. (756)

<223>

<400> 17

gga tcc tct aga gtc gac ctg cag gca tgc aat gct tat tcc att aat

48

Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn

1

5

10

15

caa aag gct tat tca aat act tac cag gag ttt act aat att gat caa

96

Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln

20

25

30

gca aaa gct tgg ggt aat gct cag tat aaa aag tat gga cta agc aaa 144

Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys

35

40

45

tca gaa aaa gaa gct ata gta tca tat act aaa agc gct agt gaa ata 192

Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile

50

55

60

aat gga aag cta aga caa aat aag gga gtt atc aat gga ttt cct tca 240

Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser

65

70

75

80

aat tta ata aaa caa gtt gaa ctt tta gat aaa tct ttt aat aaa atg 288

Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met

85

90

95

aag acc cct gaa aat att atg tta ttt aga ggc gac gac cct gct tat 336

Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr

100

105

110

tta gga aca gaa ttt caa aac act ctt ctt aat tca aat ggt aca att 384

Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile

115

120

125

aat aaa acg gct ttt gaa aag gct aaa gct aag ttt tta aat aaa gat 432

Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp

130

135

140

aga ctt gaa tat gga tat att agt act tca tta atg aat gtc tct caa 480

Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln
 145 150 155 160

 ttt gca gga aga cca att att aca caa ttt aaa gta gca aaa ggc tca 528
 Phe Ala Gly Arg Pro Ile Ile Thr Gln Phe Lys Val Ala Lys Gly Ser
 165 170 175

 aag gca gga tat att gac cct att agt gct ttt cag gga caa ctt gaa 576
 Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu
 180 185 190

 atg ttg ctt cct aga cat agt act tat cat ata gac gat atg aga ttg 624
 Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu
 195 200 205

 tct tct gat ggt aaa caa ata ata att aca gca aca atg atg ggc aca 672
 Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr
 210 215 220

 gct atc aat cct aaa gaa ttc tat ggt gct aaa aaa cgt cgt caa cgt 720
 Ala Ile Asn Pro Lys Glu Phe Tyr Gly Ala Lys Lys Arg Arg Gln Arg
 225 230 235 240

 cgt cgt gtc gac tcg agc ggc ccg cat cgt gac tga 756
 Arg Arg Val Asp Ser Ser Gly Pro His Arg Asp
 245 250

<210> 18

<211> 251

<212> PRT

<213> Artificial Sequence

<220>

<223> Sequence of C3-TS: Includes ADP-ribosyl transferase C3 (Clostridium botulinum) and HIV-1 Tat sequence.

<400> 18

Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn
1 5 10 15

Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln
20 25 30

Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys
35 40 45

Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile
50 55 60

Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser
65 70 75 80

Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met

85

90

95

Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr

100

105

110

Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile

115

120

125

Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp

130

135

140

Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln

145

150

155

160

Phe Ala Gly Arg Pro Ile Ile Thr Gln Phe Lys Val Ala Lys Gly Ser

165

170

175

Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu

180

185

190

Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu

195

200

205

Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr

210

215

220

Ala Ile Asn Pro Lys Glu Phe Tyr Gly Ala Lys Lys Arg Arg Gln Arg

225

230

235

240

Arg Arg Val Asp Ser Ser Gly Pro His Arg Asp

245

250

<210> 19

<211> 1413

<212> DNA

<213> Artificial Sequence

<220>

<223> Includes GST sequences, ADP-ribosyl transferase C3 (C. botulinum
) sequence and a random basic amino acid sequence.

<220>

<221> CDS

<222> (1) .. (1413)

<223>

<400> 19

atg tcc cct ata cta ggt tat tgg aaa att aag ggc ctt gtg caa ccc 48

Met Ser Pro Ile Leu Gly Tyr Trp Lys Ile Lys Gly Leu Val Gln Pro

1 5 10 15

act cga ctt ctt ttg gaa tat ctt gaa gaa aaa tat gaa gag cat ttg 96

Thr Arg Leu Leu Leu Glu Tyr Leu Glu Glu Lys Tyr Glu Glu His Leu

20 25 30

tat gag cgc gat gaa ggt gat aaa tgg cga aac aaa aag ttt gaa ttg 144

Tyr Glu Arg Asp Glu Gly Asp Lys Trp Arg Asn Lys Lys Phe Glu Leu

35 40 45

ggc ttg gag ttt ccc aat ctt cct tat tat att gat ggt gat gtt aaa 192

Gly Leu Glu Phe Pro Asn Leu Pro Tyr Tyr Ile Asp Gly Asp Val Lys

50 55 60

tta aca cag tct atg gcc atc ata cgt tat ata gct gac aag cac aac 240

Leu Thr Gln Ser Met Ala Ile Ile Arg Tyr Ile Ala Asp Lys His Asn

65 70 75 80

atg ttg ggt ggt tgt cca aaa gag cgt gca gag att tca atg ctt gaa 288

Met Leu Gly Gly Cys Pro Lys Glu Arg Ala Glu Ile Ser Met Leu Glu

85 90 95

gga gcg gtt ttg gat att aga tac ggt gtt tcg aga att gca tat agt 336

Gly Ala Val Leu Asp Ile Arg Tyr Gly Val Ser Arg Ile Ala Tyr Ser

100	105	110	
aaa gac ttt gaa act ctc aaa gtt gat ttt ctt agc aag cta cct gaa 384			
Lys Asp Phe Glu Thr Leu Lys Val Asp Phe Leu Ser Lys Leu Pro Glu			
115	120	125	
atg ctg aaa atg ttc gaa gat cgt tta tgt cat aaa aca tat tta aat 432			
Met Leu Lys Met Phe Glu Asp Arg Leu Cys His Lys Thr Tyr Leu Asn			
130	135	140	
ggc gat cat gta acc cat cct gac ttc atg ttg tat gac gct ctt gat 480			
Gly Asp His Val Thr His Pro Asp Phe Met Leu Tyr Asp Ala Leu Asp			
145	150	155	160
gtt gtt tta tac atg gac cca atg tgc ctg gat gcg ttc cca aaa tta 528			
Val Val Leu Tyr Met Asp Pro Met Cys Leu Asp Ala Phe Pro Lys Leu			
165	170	175	
gtt tgt ttt aaa aaa cgt att gaa gct atc cca caa att gat aag tac 576			
Val Cys Phe Lys Lys Arg Ile Glu Ala Ile Pro Gln Ile Asp Lys Tyr			
180	185	190	
ttg aaa tcc agc aag tat ata gca tgg cct ttg cag ggc tgg caa gcc 624			
Leu Lys Ser Ser Lys Tyr Ile Ala Trp Pro Leu Gln Gly Trp Gln Ala			
195	200	205	
acg ttt ggt ggt ggc gac cat cct cca aaa tcg gat ctg gtt ccg cgt 672			
Thr Phe Gly Gly Gly Asp His Pro Pro Lys Ser Asp Leu Val Pro Arg			
210	215	220	

gga tcc tct aga gtc gac ctg cag gca tgc aat gct tat tcc att aat 720

Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn

225 230 235 240

caa aag gct tat tca aat act tac cag gag ttt act aat att gat caa 768

Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln

245 250 255

gca aaa gct tgg ggt aat gct cag tat aaa aag tat gga cta agc aaa 816

Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys

260 265 270

tca gaa aaa gaa gct ata gta tca tat act aaa agc gct agt gaa ata 864

Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile

275 280 285

aat gga aag cta aga caa aat aag gga gtt atc aat gga ttt cct tca 912

Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser

290 295 300

aat tta ata aaa caa gtt gaa ctt tta gat aaa tct ttt aat aaa atg 960

Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met

305 310 315 320

aag acc cct gaa aat att atg tta ttt aga ggc gac gac cct gct tat 1008

Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr

325 330 335

tta gga aca gaa ttt caa aac act ctt ctt aat tca aat ggt aca att 1056

Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile

340

345

350

aat aaa acg gct ttt gaa aag gct aaa gct aag ttt tta aat aaa gat 1104

Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp

355

360

365

aga ctt gaa tat gga tat att agt act tca tta atg aat gtt tct caa 1152

Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln

370

375

380

ttt gca gga aga cca att att aca aaa ttt aaa gta gca aaa ggc tca 1200

Phe Ala Gly Arg Pro Ile Ile Thr Lys Phe Lys Val Ala Lys Gly Ser

385

390

395

400

aag gca gga tat att gac cct att agt gct ttt cag gga caa ctt gaa 1248

Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu

405

410

415

atg ttg ctt cct aga cat agt act tat cat ata gac gat atg aga ttg 1296

Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu

420

425

430

tct tct gat ggt aaa caa ata ata att aca gca aca atg atg ggc aca 1344

Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr

435

440

445

gct atc aat cct aaa gaa ttc aga agg aaa caa aga aga aaa aga aga 1392

Ala Ile Asn Pro Lys Glu Phe Arg Arg Lys Gln Arg Arg Lys Arg Arg

450

455

460

ctg cag gcg gcc gca tcg tga

1413

Leu Gln Ala Ala Ala Ser

465

470

<210> 20

<211> 470

<212> PRT

<213> Artificial Sequence

<220>

<223> Includes GST sequences, ADP-ribosyl transferase C3 (C. botulinum
) sequence and a random basic amino acid sequence.

<400> 20

Met Ser Pro Ile Leu Gly Tyr Trp Lys Ile Lys Gly Leu Val Gln Pro

1

5

10

15

Thr Arg Leu Leu Leu Glu Tyr Leu Glu Glu Lys Tyr Glu Glu His Leu

20

25

30

Tyr Glu Arg Asp Glu Gly Asp Lys Trp Arg Asn Lys Lys Phe Glu Leu

35

40

45

Gly Leu Glu Phe Pro Asn Leu Pro Tyr Tyr Ile Asp Gly Asp Val Lys

50

55

60

Leu Thr Gln Ser Met Ala Ile Ile Arg Tyr Ile Ala Asp Lys His Asn

65

70

75

80

Met Leu Gly Gly Cys Pro Lys Glu Arg Ala Glu Ile Ser Met Leu Glu

85

90

95

Gly Ala Val Leu Asp Ile Arg Tyr Gly Val Ser Arg Ile Ala Tyr Ser

100

105

110

Lys Asp Phe Glu Thr Leu Lys Val Asp Phe Leu Ser Lys Leu Pro Glu

115

120

125

Met Leu Lys Met Phe Glu Asp Arg Leu Cys His Lys Thr Tyr Leu Asn

130

135

140

Gly Asp His Val Thr His Pro Asp Phe Met Leu Tyr Asp Ala Leu Asp

145

150

155

160

Val Val Leu Tyr Met Asp Pro Met Cys Leu Asp Ala Phe Pro Lys Leu

165

170

175

Val Cys Phe Lys Lys Arg Ile Glu Ala Ile Pro Gln Ile Asp Lys Tyr

180

185

190

Leu Lys Ser Ser Lys Tyr Ile Ala Trp Pro Leu Gln Gly Trp Gln Ala

195

200

205

Thr Phe Gly Gly Gly Asp His Pro Pro Lys Ser Asp Leu Val Pro Arg

210

215

220

Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn

225

230

235

240

Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln

245

250

255

Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys

260

265

270

Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile

275

280

285

Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser

290

295

300

Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met

305

310

315

320

Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr

325

330

335

Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile

340

345

350

Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp

355

360

365

Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln

370

375

380

Phe Ala Gly Arg Pro Ile Ile Thr Lys Phe Lys Val Ala Lys Gly Ser

<220>

<223> Random basic amino acid sequence of C3Basic1

<400> 21

Lys Arg Arg Arg Arg Arg Pro Lys Lys Arg Arg Arg Ala Lys Arg Arg

1

5

10

15

<210> 22

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide used in the cloning of a random basic amino acid
sequence in C3Basic1

<400> 22

aagagaaggc gaagaagacc taagaagaga cgaagggcga agaggaga

48

<210> 23

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide used in the cloning of a random basic amino acid
sequence in C3Basic1

<400> 23

ttctcttccg cttcttctgg attcttctct gcttcccgt tctctct

48

<210> 24

<211> 792

<212> DNA

<213> Artificial Sequence

<220>

<223> Sequence of C3Basic1: includes ADP-ribosyl transferase C3 (Clostridium botulinum) sequence and a sequence encoding a random basic amino acid sequence and a Histidine tag.

<220>

<221> CDS

<222> (1) .. (792)

<223>

<400> 24

gga tcc tct aga gtc gac ctg cag gca tgc aat gct tat tcc att aat

48

Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn

1

5

10

15

caa aag gct tat tca aat act tac cag gag ttt act aat att gat caa

96

Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln

20

25

30

gca aaa gct tgg ggt aat gct cag tat aaa aag tat gga cta agc aaa 144

Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys

35

40

45

tca gaa aaa gaa gct ata gta tca tat act aaa agc gct agt gaa ata 192

Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile

50

55

60

aat gga aag cta aga caa aat aag gga gtt atc aat gga ttt cct tca 240

Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser

65

70

75

80

aat tta ata aaa caa gtt gaa ctt tta gat aaa tct ttt aat aaa atg 288

Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met

85

90

95

aag acc cct gaa aat att atg tta ttt aga ggc gac gac cct gct tat 336

Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr

100

105

110

tta gga aca gaa ttt caa aac act ctt ctt aat tca aat ggt aca att 384

Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile

115

120

125

aat aaa acg gct ttt gaa aag gct aaa gct aag ttt tta aat aaa gat 432

Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp

130

135

140

aga ctt gaa tat gga tat att agt act tca tta atg aat gtt tct caa 480
Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln
145 150 155 160

ttt gca gga aga cca att att aca aaa ttt aaa gta gca aaa ggc tca 528
Phe Ala Gly Arg Pro Ile Ile Thr Lys Phe Lys Val Ala Lys Gly Ser
165 170 175

aag gca gga tat att gac cct att agt gct ttt cag gga caa ctt gaa 576
Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu
180 185 190

atg ttg ctt cct aga cat agt act tat cat ata gac gat atg aga ttg 624
Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu
195 200 205

tct tct gat ggt aaa caa ata ata att aca gca aca atg atg ggc aca 672
Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr
210 215 220

gct atc aat cct aaa gaa ttc aag aga agg cga aga aga cct aag aag 720
Ala Ile Asn Pro Lys Glu Phe Lys Arg Arg Arg Arg Arg Pro Lys Lys
225 230 235 240

aga cga agg gcg aag agg aga cac cac cac cac cac cac gtc gac tcg 768
Arg Arg Arg Ala Lys Arg Arg His His His His His His Val Asp Ser
245 250 255

agc ggc cgc atc gtg act gac tga 792

Ser Gly Arg Ile Val Thr Asp

260

<210> 25

<211> 263

<212> PRT

<213> Artificial Sequence

<220>

<223> Sequence of C3Basic1: includes ADP-ribosyl transferase C3 (Clostridium botulinum) sequence and a sequence encoding a random basic amino acid sequence and a Histidine tag.

<400> 25

Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn

1

5

10

15

Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln

20

25

30

Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys

35

40

45

Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile

50 55 60

Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser

65 70 75 80

Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met

85 90 95

Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr

100 105 110

Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile

115 120 125

Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp

130 135 140

Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln

145 150 155 160

Phe Ala Gly Arg Pro Ile Ile Thr Lys Phe Lys Val Ala Lys Gly Ser

165 170 175

Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu

180

185

190

Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu

195

200

205

Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr

210

215

220

Ala Ile Asn Pro Lys Glu Phe Lys Arg Arg Arg Arg Arg Pro Lys Lys

225

230

235

240

Arg Arg Arg Ala Lys Arg Arg His His His His His His Val Asp Ser

245

250

255

Ser Gly Arg Ile Val Thr Asp

260

<210> 26

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> Random amino acid sequence of C3Basic2

<400> 26

Lys Arg Arg Arg Arg Lys Lys Arg Arg Gln Arg Arg Arg

1

5

10

<210> 27

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide used in the cloning of a random basic amino acid
sequence in C3Basic2

<400> 27

aagcgctcgac gtagaaagaa acgtagaCag cgtagacgt

39

<210> 28

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide used in the cloning of a random basic amino acid sequence in C3Basic2

<400> 28

ttcgcagctg catctttctt tgcattctgtc gcatctgca 39

<210> 29

<211> 783

<212> DNA

<213> Artificial Sequence

<220>

<223> Sequence of C3Basic2: includes sequences from ADP-ribosyl-transf erase C3 (Clostridium botulinum) and a sequence encoding a random basic amino acid sequence and a histidine tag.

<220>

<221> CDS

<222> (1) .. (783)

<223>

<400> 29

gga tcc tct aga gtc gac ctg cag gca tgc aat gct tat tcc att aat 48
Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn
1 5 10 15

caa aag gct tat tca aat act tac cag gag ttt act aat att gat caa 96

Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln

20

25

30

gca aaa gct tgg ggt aat gct cag tat aaa aag tat gga cta agc aaa 144

Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys

35

40

45

tca gaa aaa gaa gct ata gta tca tat act aaa agc gct agt gaa ata 192

Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile

50

55

60

aat gga aag cta aga caa aat aag gga gtt atc aat gga ttt cct tca 240

Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser

65

70

75

80

aat tta ata aaa caa gtt gaa ctt tta gat aaa tct ttt aat aaa atg 288

Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met

85

90

95

aag acc cct gaa aat att atg tta ttt aga ggc gac gac cct gct tat 336

Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr

100

105

110

tta gga aca gaa ttt caa aac act ctt ctt aat tca aat ggt aca att 384

Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile

115

120

125

aat aaa acg gct ttt gaa aag gct aaa gct aag ttt tta aat aaa gat 432

Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp
 130 135 140
 aga ctt gaa tat gga tat att agt act tca tta atg aat gtt tct caa 480
 Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln
 145 150 155 160
 ttt gca gga aga cca att att aca aaa ttt aaa gta gca aaa ggc tca 528
 Phe Ala Gly Arg Pro Ile Ile Thr Lys Phe Lys Val Ala Lys Gly Ser
 165 170 175
 aag gca gga tat att gac cct att agt gct ttt cag gga caa ctt gaa 576
 Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu
 180 185 190
 atg ttg ctt cct aga cat agt act tat cat ata gac gat atg aga ttg 624
 Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu
 195 200 205
 tct tct gat ggt aaa caa ata ata att aca gca aca atg atg ggc aca 672
 Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr
 210 215 220
 gct atc aat cct aaa gaa ttc aag cgt cga cgt aga aag aaa cgt aga 720
 Ala Ile Asn Pro Lys Glu Phe Lys Arg Arg Arg Arg Lys Lys Arg Arg
 225 230 235 240
 cag cgt aga cgt cac cac cac cac cac gtc gac tcg agc ggc cgc 768
 Gln Arg Arg Arg His His His His His His Val Asp Ser Ser Gly Arg

245

250

255

atc gtg act gac tga

783

Ile Val Thr Asp

260

<210> 30

<211> 260

<212> PRT

<213> Artificial Sequence

<220>

<223> Sequence of C3Basic2: includes sequences from ADP-ribosyl-transf
erase C3 (Clostridium botulinum) and a sequence encoding a random
basic amino acid sequence and a histidine tag.

<400> 30

Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn

1

5

10

15

Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln

20

25

30

Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys

35

40

45

Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile

50

55

60

Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser

65

70

75

80

Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met

85

90

95

Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr

100

105

110

Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile

115

120

125

Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp

130

135

140

Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln

145

150

155

160

Phe Ala Gly Arg Pro Ile Ile Thr Lys Phe Lys Val Ala Lys Gly Ser

165

170

175

Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu

180

185

190

Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu

195

200

205

Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr

210

215

220

Ala Ile Asn Pro Lys Glu Phe Lys Arg Arg Arg Arg Lys Lys Arg Arg

225

230

235

240

Gln Arg Arg Arg His His His His His His Val Asp Ser Ser Gly Arg

245

250

255

Ile Val Thr Asp

260

<210> 31

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Reverse HIV-1 Tat amino acid sequence of C3Basic3

<400> 31

Arg Arg Lys Gln Arg Arg Lys Arg Arg

1

5

<210> 32

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide used in the cloning of a reverse HIV Tat sequence
in C3Basic3

<400> 32

agaaggaaac aaagaagaaa aagaaga

27

<210> 33

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide used in the cloning of a reverse HIV Tat sequence
in C3Basic3

<400> 33

tcttcctttg tttcttcttt ttcttct

27

<210> 34

<211> 771

<212> DNA

<213> Artificial Sequence

<220>

<223> Sequence of C3Basic3: includes sequences from ADP-ribosyl transfer
ase C3 (C. botulinum) and a sequence encoding a reverse HIV-1 Tat
amino acid sequence and a Histidine tag

<220>

<221> CDS

<222> (1) .. (771)

<223>

<400> 34

gga tcc tct aga gtc gac ctg cag gca tgc aat gct tat tcc att aat

48

Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn
 1 5 10 15
 caa aag gct tat tca aat act tac cag gag ttt act aat att gat caa 96
 Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln
 20 25 30
 gca aaa gct tgg ggt aat gct cag tat aaa aag tat gga cta agc aaa 144
 Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys
 35 40 45
 tca gaa aaa gaa gct ata gta tca tat act aaa agc gct agt gaa ata 192
 Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile
 50 55 60
 aat gga aag cta aga caa aat aag gga gtt atc aat gga ttt cct tca 240
 Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser
 65 70 75 80
 aat tta ata aaa caa gtt gaa ctt tta gat aaa tct ttt aat aaa atg 288
 Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met
 85 90 95
 aag acc cct gaa aat att atg tta ttt aga ggc gac gac cct gct tat 336
 Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr
 100 105 110
 tta gga aca gaa ttt caa aac act ctt ctt aat tca aat ggt aca att 384
 Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile

115 120 125
aat aaa acg gct ttt gaa aag gct aaa gct aag ttt tta aat aaa gat 432
Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp
130 135 140
aga ctt gaa tat gga tat att agt act tca tta atg aat gtt tct caa 480
Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln
145 150 155 160
ttt gca gga aga cca att att aca aaa ttt aaa gta gca aaa ggc tca 528
Phe Ala Gly Arg Pro Ile Ile Thr Lys Phe Lys Val Ala Lys Gly Ser
165 170 175
aag gca gga tat att gac cct att agt gct ttt cag gga caa ctt gaa 576
Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu
180 185 190
atg ttg ctt cct aga cat agt act tat cat ata gac gat atg aga ttg 624
Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu
195 200 205
tct tct gat ggt aaa caa ata ata att aca gca aca atg atg ggc aca 672
Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr
210 215 220
gct atc aat cct aaa gaa ttc aga agg aaa caa aga aga aaa aga aga 720
Ala Ile Asn Pro Lys Glu Phe Arg Arg Lys Gln Arg Arg Lys Arg Arg
225 230 235 240

cac cac cac cac cac cac gtc gac tcg agc ggc cgc atc gtg act gac 768

His His His His His His Val Asp Ser Ser Gly Arg Ile Val Thr Asp

245

250

255

tga

771

<210> 35

<211> 256

<212> PRT

<213> Artificial Sequence

<220>

<223> Sequence of C3Basic3: includes sequences from ADP-ribosyl transfer
ase C3 (C. botulinum) and a sequence encoding a reverse HIV-1 Tat
amino acid sequence and a Histidine tag

<400> 35

Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn

1

5

10

15

Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln

20

25

30

Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys

35

40

45

Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile

50

55

60

Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro. Ser

65

70

75

80

Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met

85

90

95

Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr

100

105

110

Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile

115

120

125

Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp

130

135

140

Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln

145

150

155

160

Phe Ala Gly Arg Pro Ile Ile Thr Lys Phe Lys Val Ala Lys Gly Ser

165

170

175

Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu

180

185

190

Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu

195

200

205

Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr

210

215

220

Ala Ile Asn Pro Lys Glu Phe Arg Arg Lys Gln Arg Arg Lys Arg Arg

225

230

235

240

His His His His His His Val Asp Ser Ser Gly Arg Ile Val Thr Asp

245

250

255

<210> 36

<211> 887

<212> DNA

<213> Artificial Sequence

<220>

<223> Sequence of C3APLT: includes sequences from ADP-ribosyl transferase C3 (Clostridium botulinum) and a sequence encoding a proline rich region.

<220>

<221> CDS

<222> (1) .. (747)

<223>

<400> 36

gga tcc tct aga gtc gac ctg cag gca tgc aat gct tat tcc att aat 48
Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn
1 5 10 15

caa aag gct tat tca aat act tac cag gag ttt act aat att gat caa 96
Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln
20 25 30

gca aaa gct tgg ggt aat gct cag tat aaa aag tat gga cta agc aaa 144
Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys
35 40 45

tca gaa aaa gaa gct ata gta tca tat act aaa agc gct agt gaa ata 192
Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile
50 55 60

aat gga aag cta aga caa aat aag gga gtt atc aat gga ttt cct tca 240
Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser
65 70 75 80

aat tta ata aaa caa gtt gaa ctt tta gat aaa tct ttt aat aaa atg 288
Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met
85 90 95

aag acc cct gaa aat att atg tta ttt aga ggc gac gac cct gct tat 336
Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr
100 105 110

tta gga aca gaa ttt caa aac act ctt ctt aat tca aat ggt aca att 384
Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile
115 120 125

aat aaa acg gct ttt gaa aag gct aaa gct aag ttt tta aat aaa gat 432
Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp
130 135 140

aga ctt gaa tat gga tat att agt act tca tta atg aat gtt tct caa 480
Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln
145 150 155 160

ttt gca gga aga cca att att aca aaa ttt aaa gta gca aaa ggc tca 528
Phe Ala Gly Arg Pro Ile Ile Thr Lys Phe Lys Val Ala Lys Gly Ser
165 170 175

aag gca gga tat att gac cct att agt gct ttt gca gga caa ctt gaa 576

Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Ala Gly Gln Leu Glu

180

185

190

atg ttg ctt cct aga cat agt act tat cat ata gac gat atg aga ttg 624

Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu

195

200

205

tct tct gat ggt aaa caa ata ata att aca gca aca atg atg ggc aca 672

Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr

210

215

220

gct atc aat cct aaa gaa ttc gtg atg aat ccc gca aac gcg caa ggc 720

Ala Ile Asn Pro Lys Glu Phe Val Met Asn Pro Ala Asn Ala Gln Gly

225

230

235

240

aga cat aca ccc ggt acc aga ctc tag agctagagaa ggagtttcac 767

Arg His Thr Pro Gly Thr Arg Leu

245

ttcaatcgct acttgacccg tcggcgaagg atcgagatcg cccacgccct gtgcctcacg 827

gagcgccaga taaagatttg gttccagaat cggcgcgatga agtggaagaa ggagaactga 887

<210> 37

<211> 248

<212> PRT

<213> Artificial Sequence

<220>

<223> Sequence of C3APLT: includes sequences from ADP-ribosyl transferase C3 (Clostridium botulinum) and a sequence encoding a proline rich region.

<400> 37

Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn
1 5 10 15

Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln
20 25 30

Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys
35 40 45

Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile
50 55 60

Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser
65 70 75 80

Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met

85

90

95

Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr

100

105

110

Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile

115

120

125

Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp

130

135

140

Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln

145

150

155

160

Phe Ala Gly Arg Pro Ile Ile Thr Lys Phe Lys Val Ala Lys Gly Ser

165

170

175

Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Ala Gly Gln Leu Glu

180

185

190

Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu

195

200

205

Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr

210

215

220

Ala Ile Asn Pro Lys Glu Phe Val Met Asn Pro Ala Asn Ala Gln Gly

225

230

235

240

Arg His Thr Pro Gly Thr Arg Leu

245

<210> 38

<211> 37

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide used in the cloning of C3APLT in pET vector

<400> 38

ggatctgggtt ccgcgtcata tgtctagagt cgacctg

37

<210> 39

<211> 32

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide used in the cloning of C3APLT in pET vector

<400> 39

cgcggatcca ttagttctcc ttcttcact tc

32

<210> 40

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide used in the sequencing of C3APLT

<400> 40

aaattaatac gactcactat aggg

24

<210> 41

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide used in the sequencing of C3APLT

<400> 41

gctagttatt gctcagcgg

19

<210> 42

<211> 888

<212> DNA

<213> Artificial Sequence

<220>

<223> Sequence of C3APLT in a pET vector: includes sequences from ADP-ribosyl transferase C3 (Clostridium botulinum) and a sequence encoding a proline rich region.

<220>

<221> CDS

<222> (1)...(744)

<223>

<400> 42

atg tct aga gtc gca ctg cag gca tgc aat gct tat tcc att aat caa 48

Met Ser Arg Val Ala Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn Gln

1

5

10

15

aag gct tat tca aat act tac cag gag ttt act aat att gat caa gca 96

Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln Ala

20

25

30

aaa gct tgg ggt aat gct cag tat aaa aag tat gga cta agc aaa tca 144
Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys Ser
35 40 45

gaa aaa gaa gct ata gta tca tat act aaa agc gct agt gaa ata aat 192
Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile Asn
50 55 60

gga aag cta aga caa aat aag gga gtt atc aat gga ttt cct tca aat 240
Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser Asn
65 70 75 80

tta ata aaa caa gtt gaa ctt tta gat aaa tct ttt aat aaa atg aag 288
Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met Lys
85 90 95

acc cct gaa aat att atg tta ttt aga ggc gac gac cct gct tat tta 336
Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr Leu
100 105 110

gga aca gaa ttt caa aac act ctt ctt aat tca aat ggt aca att aat 384
Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile Asn
115 120 125

aaa acg gct ttt gaa aag gct aaa gct aag ttt tta aat aaa gat aga 432
Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp Arg
130 135 140

ctt gaa tat gga tat att agt act tca tta atg aat gtt tct caa ttt 480
Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln Phe
145 150 155 160

gca gga aga cca att att aca aaa ttt aaa gta gca aaa ggc tca aag 528
Ala Gly Arg Pro Ile Ile Thr Lys Phe Lys Val Ala Lys Gly Ser Lys
165 170 175

gca gga tat att gac cct att agt gct ttt gca gga caa ctt gaa atg 576
Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Ala Gly Gln Leu Glu Met
180 185 190

ttg ctt cct aga cat agt act tat cat ata gac gat atg aga ttg tct 624
Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu Ser
195 200 205

tct gat ggt aaa caa ata ata att aca gca aca atg atg ggc aca gct 672
Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr Ala
210 215 220

atc aat cct aaa gaa ttc gtg atg aat ccc gca aac gcg caa ggc aga 720
Ile Asn Pro Lys Glu Phe Val Met Asn Pro Ala Asn Ala Gln Gly Arg
225 230 235 240

cat aca ccc ggt acc aga ctc tag agctagagaa ggagtttcac ttcaatcgct 774
His Thr Pro Gly Thr Arg Leu
245

açttgacccg tcggcgaagg atcgagatcg cccacgcctt gtgcctcacg gagcgccaga 834

taaagatttg gttccagaat cggcgcgatga agtggaagaa ggaggactaa ctga 888

<210> 43

<211> 247

<212> PRT

<213> Artificial Sequence

<220>

<223> Sequence of C3APLT in a pET vector: includes sequences from ADP
-ribosyl transferase C3 (Clostridium botulinum) and a sequence en
coding a proline rich region.

<400> 43

Met Ser Arg Val Ala Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn Gln

1 5 10 15

Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln Ala

20 25 30

Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys Ser

35 40 45

Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile Asn

71/84

Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Ala Gly Gln Leu Glu Met

180

185

190

Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu Ser

195

200

205

Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr Ala

210

215

220

Ile Asn Pro Lys Glu Phe Val Met Asn Pro Ala Asn Ala Gln Gly Arg

225

230

235

240

His Thr Pro Gly Thr Arg Leu

245

<210> 44

<211> 64

<212> PRT

<213> Artificial Sequence

<220>

<223> Amino acid sequence of Antennapedia from C3APL

<400> 44

Val Met Glu Ser Arg Lys Arg Ala Arg Gln Thr Tyr Thr Arg Tyr Gln
1 5 10 15

Thr Leu Glu Leu Glu Lys Glu Phe His Phe Asn Arg Tyr Leu Thr Arg
20 25 30

Arg Arg Arg Ile Glu Ile Ala His Ala Leu Cys Leu Thr Glu Arg Gln
35 40 45

Ile Lys Ile Trp Phe Gln Asn Arg Arg Met Lys Trp Lys Lys Glu Asn
50 55 60

<210> 45

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Amino acid sequence of Antennapedia from C3APS

<400> 45

Arg Gln Ile Lys Ile Trp Phe Gln Asn Arg Arg Met Lys Trp Lys Lys

1

5

10

15

Val Asp Ser

<210> 46

<211> 60

<212> PRT

<213> Artificial Sequence

<220>

<223> Amino acid sequence of HIV-1 Tat from C3-TL

<400> 46

Lys His Pro Gly Ser Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys

1

5

10

15

Lys Lys Cys Cys Phe His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu

20

25

30

Gly Ile Ser Tyr Gly Arg Lys Arg Arg Gln Arg Arg Arg Ala His Gln

35

40

45

Asn Ser Gln Thr His Gln Ala Ser Leu Ser Lys Gln

50

55

60

<210> 47

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Amino acid sequence of HIV-1 Tat from C3-TS

<400> 47

Tyr Gly Ala Lys Lys Arg Arg Gln Arg Arg Arg Val Asp Ser Ser Gly

1

5

10

15

Pro His Arg Asp

20

<210> 48

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Amino acid sequence of the proline rich region of C3APLT

<400> 48

Val Met Asn Pro Ala Asn Ala Gln Gly Arg His Thr Pro Gly Thr Arg

1

5

10

15

Leu

<210> 49

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> Amino acid sequence fused to C3 protein to created C3 Tat-short

<400> 49

Tyr Gly Arg Lys Arg Arg Gln Arg Arg Arg

1

5

10

<210> 50

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Reverse sequence of Tat amino acids fused to C3 protein to created C3Basic3

<400> 50

Arg Arg Gln Arg Arg Lys Lys Arg

1

5

<210> 51

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> transport peptide rich in Proline

<400> 51

Ala Ala Val Leu Leu Pro Val Leu Leu Ala Ala Pro

1

5

10

<210> 52

<211> 24

<212> PRT

<213> Artificial Sequence

<220>

<223> Sperm fertiline alpha peptide

<400> 52

His Pro Ile Gln Ile Ala Ala Phe Leu Ala Arg Ile Pro Pro Ile Ser

1

5

10

15

Ser Ile Gly Thr Cys Ile Leu Lys

20

<210> 53

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Amino acid sequence from the C3Basic3

<400> 53

Arg Arg Lys Gln Arg Arg Lys Arg Arg

1

5

<210> 54

<211> 744

<212> DNA

<213> Artificial Sequence

<220>

<223> Sequence of C3-O7Q189A

<400> 54

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atgtctagag tcgacctgca ggcattgcaat gcttattcca ttaatcaaaa ggcttattca      60
aatacttacc aggagtttac taatattgat caagcaaaag cttggggtaa tgctcagtat      120
aaaaagtatg gactaagcaa atcagaaaaa gaagctatag tatcatatac taaaagcgct      180
agtgaataaa atggaaagct aagacaaaat aaggagatta tcaatggatt tccttcaaatt      240
ttaataaaac aagttgaact tttagataaa tcttttaata aaatgaagac ccctgaaaat      300
attatgttat ttagaggcga cgaccttgct tatttaggaa cagaatttca aaacactctt      360
cttaattcaa atggtacaat taataaaacg gcttttgaaa aggctaaagc taagttttta      420
aataaagata gacttgaata tggatatatt agtacttcat taatgaatgt ttctcaattt      480
gcaggaagac caattattac aaaattttaa gtagcaaaag gctcaaaggc aggatatatt      540
gacctatta gtgcttttgc aggagcactt gaaatgttgc ttcctagaca tagtacttat      600
catatagacg atatgagatt gtcttctgat ggtaaacaaa taataattac agcaacaatg      660
atgggcacag ctatcaatcc taaagaattc gtgatgaatc ccgcaaacgc gcaaggcaga      720
catacaccgc gtaccagact ctag                                             744
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<210> 55

<211> 247

<212> PRT

<213> Artificial Sequence

<220>

<223> Amino acid sequence of C3-07Q189A

<400> 55

Met Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn Gln

1 5 10 15

Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln Ala

20 25 30

Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys Ser

35 40 45

Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile Asn

50 55 60

Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser Asn

65 70 75 80

Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met Lys

85 90 95

Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr Leu

100 105 110

Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile Asn

115 120 125

Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp Arg

130 135 140

Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln Phe

145 150 155 160

Ala Gly Arg Pro Ile Ile Thr Gln Phe Lys Val Ala Lys Gly Ser Lys

165 170 175

Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Ala Leu Glu Met

180 185 190

Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu Ser

195 200 205

Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr Ala
210 215 220
Ile Asn Pro Lys Glu Phe Val Met Asn Pro Ala Asn Ala Gln Gly Arg
225 230 235 240
His Thr Pro Gly Thr Arg Leu
245

<210> 56
<211> 783
<212> DNA
<213> Artificial Sequence

<220>
<223> Sequence of BA-05

<400> 56
ggatcctcta gagtcgacct gcaggcatgc aatgcttatt ccattaatca aaaggcttat 60
tcaaatactt accaggagtt tactaatatt gatcaagcaa aagcttgggg taatgctcag 120
tataaaaagt atggactaag caaatcagaa aaagaagcta tagtatcata tactaaaagc 180
gctagtgaaa taaatggaaa gctaagacaa aataagggag ttatcaatgg atttccttca 240
aatttaataa aacaagttga acttttagat aaatctttta ataaaatgaa gacccttgaa 300
aatattatgt tatttagagg cgacgaccct gcttatntag gaacagaatt tcaaaacact 360
cttcttaatt caaatggtac aattaataaa acggcttttg aaaaggctaa agctaagttt 420
ttaaataaag atagacttga atatggatat attagtactt cattaatgaa tgtttctcaa 480
tttgcaggaa gaccaattat tacaaaattt aaagtagcaa aaggctcaaa ggcaggatat 540
attgacccta ttagtgcttt tgcaggacaa cttgaaatgt tgcttcctag acatagtact 600
tatcatatag acgatatgag attgtcttct gatggtaaac aaataataat tacagcaaca 660

atgatgggca cagctatcaa tcctaaagaa ttctgtgatga atcccgcaaa cgcgcaaggc 720
agacatacac ccggtaccag actctagagc tagagaagga gtttcacttc aatcgctact 780
tga 783

<210> 57

<211> 247

<212> PRT

<213> Artificial Sequence

<220>

<223> Amino acid sequence of pET9a-BA-07

<400> 57

Met Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn Gln
1 5 10 15
Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln Ala
20 25 30
Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys Ser
35 40 45
Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile Asn
50 55 60
Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser Asn
65 70 75 80
Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met Lys
85 90 95
Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr Leu
100 105 110
Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile Asn

115 120 125
Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp Arg
130 135 140
Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln Phe
145 150 155 160
Ala Gly Arg Pro Ile Ile Thr Lys Phe Lys Val Ala Lys Gly Ser Lys
165 170 175
Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Ala Gly Gln Leu Glu Met
180 185 190
Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu Ser
195 200 205
Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr Ala
210 215 220
Ile Asn Pro Lys Glu Phe Val Met Asn Pro Ala Asn Ala Gln Gly Arg
225 230 235 240
His Thr Pro Gly Thr Arg Leu
245

<210> 58

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 58

cctaaagaat tcgtgatgaa tcccgcaaac gcgca

35

<210> 59

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 59

tgcgcgtttg cgggattcat cacgaattct ttagg

35